

LISTING OF CLAIMS:

Amend claims 5-7 as follows:

5. (Amended) A printer in accordance with any one of claims 1 [through 3] and 2, wherein said information writing unit writes the specific information into said rewritable storage device on completion of printing with regard to one page.

6. (Amended) A printer in accordance with any one of claims 1 [through 5], 2 and 4, wherein said information writing unit writes the specific information into said rewritable storage device on completion of printing with regard to at least one raster line.

7. (Twice Amended) A printer in accordance with any one of claims 1 [through 6], 2 and 4, said printer further comprising:

a print head that is mounted on [a] said printer main body of said printer; and

a cleaning unit that is activated in response to a predetermined operation, so as to carry out a head cleaning process, which causes said print head to eject a predetermined quantity of ink,

wherein said information writing unit writes the specific information into said rewritable storage device at a timing when said cleaning unit is activated.

Add claims 31-61:

31. (New) A cartridge in accordance with claim 19, wherein the power down instruction occurs when

- (1) a power switch of the printer is turned down;
- (2) a cartridge switch is operated to give an instruction of replacing the ink cartridge; and
- (3) a power supply to the printer main body is forcibly cut off by pulling a power plug.

32. (New) A printer having a printer main body, to which a cartridge is detachably attached, said cartridge keeping ink therein and having a rewritable non-volatile memory, wherein the ink kept in said cartridge is transferred to a printing medium, so as to implement printing, said printer comprising:

memory writing means for writing information relating to said cartridge into said rewritable non-volatile memory of said cartridge;

means for storing data which can be rewritten, said means for storing data being incorporated in said printer main body of said printer; and

information writing means for writing specific information into said means for storing data more frequently than the memory writing means writes information into said non-volatile memory of said cartridge, the specific information being identical with at least part of the information relating to said cartridge.

33. (New) A printer in accordance with claim 32, wherein said information writing means writes the specific information into said means for storing data of said printer main body at the preset timing as well as at another timing.

34. (New) A printer in accordance with either one of claims 32 and 33, said printer further comprising:

printing means mounted on said printer main body of said printer for printing on the printing medium,

wherein said cartridge is detachably attached to a carriage, on which said printing means is mounted and which moves forward and backward relative to said printing medium, and

said means for storing data of said printer main body is disposed on said carriage.

35. (New) A printer in accordance with claim 32, wherein said memory writing means writes the plural pieces of information into said rewritable non-volatile memory of said cartridge at a power-off time of said printer and/or at a time of replacement of said cartridge.

36. (New) A printer in accordance with any one of claims 32, 33 and 35, wherein said information writing means writes the specific information into said means for storing data of said printer main body on completion of printing with regard to one page.

37 (New) A printer in accordance with any one of claims 32, 33 and 35, wherein said information writing means writes the specific information into said means for storing data of said printer main body on completion of printing with regard to at least one raster line.

38. (New) A printer in accordance with any one of claims 32, 33 and 35, said printer further comprising:

printing means mounted on said printer main body of said printer for printing on the printing medium; and

cleaning means, activated in response to a predetermined operation, for cleaning said printing means,

wherein said information writing means writes the specific information into said means for storing data, at a timing when said cleaning means is activated.

39. (New) A printer in accordance with claim 32, wherein said non-volatile memory transmits data by serial access, and

said memory writing means writes the plural pieces of information into said non-volatile memory of said cartridge in synchronism with a clock for specifying an address.

40. (New) A printer in accordance with claim 32, wherein said means for storing data of said printer main body is a non-volatile memory that holds contents of storage even after a power-off operation of said printer.

41. (New) A printer in accordance with claim 32, wherein a writing rate of said means for storing data of said printer main body is higher than a writing rate of said rewritable non-volatile memory of said cartridge.

42. (New) A printer in accordance with claim 41, wherein said means for storing data of said printer main body is either a DRAM or an SRAM.

43. (New) A printer in accordance with either one of claims 40 and 42, wherein said means for storing data of said printer main body is disposed in a control IC, which directly controls the writing operation of the plural pieces of information into said non-volatile memory of said cartridge.

44. (New) A printer in accordance with claim 43, said printer further comprising:

printing means mounted on said printer main body of said printer for printing on the printing medium,

wherein said cartridge is detachably attached to a carriage, on which said printing means is mounted and which moves forward and backward relative to said printing medium,

said control IC is disposed on said carriage, and

said control IC on said carriage transfers data to be written into said non-volatile memory from said printer main body to said cartridge via a cable connecting with said carriage.

45. (New) A printer in accordance with claim 32, wherein

both a black ink cartridge that keeps black ink and a color ink cartridge that keeps a plurality of different color inks are detachably attached to said printer as said cartridge, and

said memory writing means writes the plural pieces of information into non-volatile memories, which are respectively provided in said black ink cartridge and said color ink cartridge.

46. (New) A printer in accordance with claim 32, wherein said memory writing means writes the plural pieces of information into said non-volatile memory of said cartridge, before said information writing means writes the specific information into said means for storing data of said printer main body.

47. (New) A printer in accordance with claim 32, wherein said memory writing means writes the plural pieces of information into said non-volatile memory of said cartridge, after the writing operation of said information writing means into said means for storing data of said printer main body is completed.

48. (New) A printer in accordance with claim 32, said printer further comprising:

identification means for determining whether or not contents of storage in said non-volatile memory of said cartridge are coincident with contents of storage in said means for storing data of said printer main body at a time of power supply to said printer and/or at a time of initiating a replacement of said cartridge; and

reconciliation means for reconciling the contents of storage in one of said non-volatile memory and said means for storing data of said printer main body with the contents of storage in the other of said non-volatile memory and said means for storing data of said printer main body, in the case where said identification means determines that the contents of storage in said non-volatile memory are not coincident with the contents of storage in said means for storing data of said printer main body.

49. (New) A cartridge keeping ink therein and having a rewritable non-volatile memory, said cartridge for detachably attaching to a printer,

wherein information relating to said cartridge is written by a means for writing information into said non-volatile memory of said cartridge less frequently than the information relating to said cartridge is written into a storage device incorporated in a printer main body of said printer, and

wherein the means for writing writes the information into said non-volatile memory in response to a power down instruction occurred in the printer main body.

50. (New) A cartridge in accordance with claim 49, wherein the means for writing writes the information relating to said cartridge into said non-volatile memory of said cartridge at a power-off time of said printer and/or at a time of replacement of said cartridge.

51. (New) A cartridge in accordance with claim 49, wherein said non-volatile memory transmits data by serial access, and the writing operation of the information relating to said cartridge into said non-volatile memory is carried out by the means for writing synchronously with a clock for specifying an address.

52. (New) A cartridge in accordance with claim 49, wherein the means for writing writes the information relating to said cartridge into said non-volatile memory of said cartridge, before the information is written into said storage device of said printer main body.

53. (New) A cartridge in accordance with claim 49, wherein the means for writing writes the information relating to said cartridge is written into said non-volatile memory

of said cartridge, after the writing operation of the information into said storage device of said printer main body is completed.

54. (New) A cartridge in accordance with claim 49, said cartridge comprising:
ink storing means for storing a plurality of different inks,
wherein plural pieces of information with regard to the plurality of different inks
are written by said means for writing into said non-volatile memory of said cartridge.

55. (New) A cartridge in accordance with claim 54, wherein said ink storing
means is parted into at least three ink chambers, in which at least three different inks are kept,
wherein said non-volatile memory comprises a plurality of information storage
areas, in which plural pieces of information regarding quantities of the at least three different
inks are stored respectively and independently, and
a storage capacity of at least one byte is allocated to each of the plurality of
information storage areas.

56. (New) A cartridge in accordance with claim 54, wherein said ink storing
means is parted into at least five ink chambers, in which at least five different inks are kept,
wherein said non-volatile memory comprises a plurality of information storage
areas, in which plural pieces of information regarding quantities of the at least five different
inks are stored respectively and independently, and
a storage capacity of at least one byte is allocated to each of the plurality of
information storage areas.

57. (New) A cartridge in accordance with claim 56, wherein the at least five different inks comprise three deep color inks and two light color inks, which correspond to two deep colors among the three deep color inks,

the information storage areas for storing pieces of information regarding the three deep color inks being located in a first area that is written first by said printer, and the information storage areas for storing pieces of information regarding the two light color inks being located in a second area that is written next by said printer.

58. (New) A cartridge in accordance with claim 57, wherein the three deep color inks are cyan, magenta, and yellow, and the two light color inks are light cyan and light magenta.

59. (New) A cartridge in accordance with claim 56, wherein said non-volatile memory has a specific writing area, in which the plural pieces of information are written, on one end of a memory space thereof.

60. (New) A cartridge in accordance with claim 49, wherein said non-volatile memory is an EEPROM.

61. (New) A cartridge in accordance with claim 49, wherein the power down instruction occurs when

(1) a power switch of the printer is turned down;

(2) a cartridge switch is operated to give an instruction of replacing the ink cartridge; and

(3) a power supply to the printer main body is forcibly cut off by pulling a power plug.